Worksheet 1 Functions of an operating system

Task 1

1. The memory of a computer is currently allocated as follows:

RAM
Process
A
B
C
D
E

Virtual memory	
Address	**Process**
1	A
2	A
3	D
4	D
5	D
6	E

The tables show that parts of processes A, D and E, for example, are currently in main memory and parts of each is in virtual memory. Processes B and C are also currently in main memory.

a) Explain why process **D** is mostly stored in virtual memory and not in RAM.

b) What will happen if process **D** requires data or instructions contained within the virtual memory?

c) If process **D** needs to to access data or instructions from virtual memory on a regular basis, describe how this will affect the computer's performance.

d) State two ways the user could avoid the performance issues you discussed in part (c)

Task 2

2. Imagine a small supermarket with one till. Customers arrive at different times, each customer has a different number of items and they get grumpy if they have to wait too long. The supermarket's aim is to keep all customers waiting for as short a time as possible.

Discuss with a partner or group:

- Which scheduling algorithm best reflects the one used by customers queuing in a supermarket? (Round Robin, First Come First Served, Shortest time remaining, Multi level feedback queues)

- Evaluate the benefits and drawbacks of using each scheduling algorithm for a supermarket queue.
    - Would any of them work better than the current system?
    - Do any of the algorithms benefit particular customers more than others? Consider when the customer arrives and how many items the customer has in their trolley.